HALDA MECHANISM

Principal operating parts.

Line Space Lever
Line Finder or line gauge
Paper side guide
Variable line spacer knob
Platen detent grelease lever
Line space gauge
Carriage release levers right and left
Marginal release
Shift Lock
Feed rolls
Escapement wheel
Universal bar
Paper Bail
Paper feed release lever
Front Scale indicator
Ribbin control lever
Left and right marginal stops
Line space adjuster
Tabulator stops clearing lever
Cyliner or platen
Ribbon reverse rod
Dog block
Main spring and draw chord

1. LINE SPACE LEVER:- For returning carriage and spacing to next writing line in one operation. Also known as carriage return lever.
2. LINE FINDER OR ALIGNING SCALE OR CYLINDER SCALE:- Indicates botton edge of writing line. Used for re-adjusting paper after removal and for writing on ruled paper.
3. ADJUSTABLE PAPER SIDE GUIDE:- May be umoved on scale on paper table to accommodate varying widths of paper. Provides uniform margin on successive sheets without adjusting margin stops.
4. VARIABLE LINE SPACER KNOB:- For releasing platen from ratchet, for writing on reuled paper and filling in work previously done. Press in button and turn platen knob at the same time.
5. PLATEN DETENT RELEASE LEVER: Frees platen from the control of the line space ratchet, yet permits use olf line space lever. When the ratchet is again engaged, the platen will turn to the exact point of original writing.
6. LINE SPACE GAUGE:- Used for regulating single, double or triple spacing between lines.
6. CARRIAGE RELEASE LEVERS RIGHT AND LEFT:- Permits free movement of carriage to right or left easily and quickly.
8. MARGINAL RELEASE:- Forwriting outside either right or left margin without adjusting stops.
9. SHIFT LOCK:- For continuous writing of capital letters or upper case characters.
10. FEED ROOLS:- For holding paper tightly against the platen and feeding the same properly.
11. ESCAPEMENT WHEEL:
12. UNIVERSAL BAR:-
13. PAPER BAIL AND PAPER FEED RELEASE LEVER:- Holds paper firmly against platen. Has scale corresponding to margin stops scale. May be easily pulled corward or lifted up to free paper when making erasures.
14. PAPER FEED RELEASE LEVER:- Pull forward to free paper for removal or adjustment.
15. FRONT SCALE INDICATER:- Indicates the printing point.
16. RIBBON CONTROL LEVER: Indicates which portion of ribbon is used. Used to regulate the lifting up or the ribbon charater.
17. LEFT MARGINAL STOP:
18. RIGHT MARGINAL STOP
19. LINE SPACE ADJUSTER:- To adjust 1, 1½, 2, 2½, and 3 spaces.
20. TABULATOR KEY:- Toposition carriage after tabulator stops have been set for desired writing points.

21. BACKSPACE:- For moving carriage back one space at atime.

22. TABULATOR STOPS CLEARING LEVER } For clearing tabulator stops collectively.

23. TABULATOR STOP RELEASE:-- For clearing tabulator stops individually.

24. CYLINDER OR PLATEN:-

25. RIBBON REVERSE ROD:--A manual control to change direction of ribbon travel.

26. SPACE BAR:-- For leaving a blank space between words.

27. DOG BLOCK AND THE DOGS - RIGID and Loose.

28. MAIN SPRING

29. DRAWBAND OR DRANCHORD OR DRAWSTRAP.

Key-board, fingering and manipulation:-

The arrangement of the Kwy-board in 'Halda/'Halda Tamil' is based on two principles with a view to render manipulation easy and effective. The first principle in the arrangement is that the keys most frequently used are located within convenient reach of the meet jexterious fingers. The letters which occur more frequently are placed in the centre of the keyboard over the first and second fingers of the hands, so that these fingers may have more work to do than the others because they are relatively stronger, Secondly since Halda/Halda Tamil is a type-bar machine the characters must be struck with varying degrees of force to produce uniformity of impression. Characters which are larger and more complex require more force than the rest. The amount of force which the fingers can impart to the keys is in a descending degree from the first or fore-finger to the fourth. Cha acters which require more force on account of their size and complexity are therefore placed near the centre just below the first and second fingers when the hands are stretched over the key-board. The judicious application of these two principles has resulted in the arrangement of the characters as found on the key-board of the Halda/Halda Tamil.

Each key of the key-board represents two characters. The operation of these keys are controlled by the Shift Key. It is so called because when the key is depressed the Segment of the machine is lowered from its normal position. Halda/Halda Tamil has single shift system with a key-board of 44/46 keys. Besides these keys, there are also a back space key, a tabulator key, 2 shift keys and a shift lock. The shift key by itself when pressed down cannot produce an impression on paper nor does its depression make the carriage move. Its depression just serves to bring a new set or line of types into play.

The method of fingering has been determined by practical considerations. The main objects underlying this principle are three in number, viz. high-speed, uniformity of impression and the avoidance of unnecessary fatigue. To secure speed both hands should be used and the fingers should be maintained in nearly the same position over the key-board without having to be moved about from one end to the other. The character keys required different degree of touch to produce the same with varying strength as explained above istherefore recommended, The employment of as many fingers as possible of both the hands brings into play alternatively different sets of muscles and avaoid early fatigue. According to the latest Four Finger touch system the manipulation of the key-board is as follows. The third row of the key-board is called the Guide Row and the

keys are called the Guide keys. The key-board is divided into tow halves, the right half to be manipulated by the right hand and the left half by the left hand. The first finger or what is called the fore-finger is used for typing two letters in the middle. The right thumb is used for the space bar. The little fingers are used for the operation of the Shift Key on the respective side. Right side finger is used while typing upper case characters on the left side and the left side finger is used while typing upper case characters on the right side. For typing the key on the lower and upper rows fingers are raised one at a time and brought back to the guide row after strikingthe keys so that mis-typing may not to be cased in following the touch system. For typing the key on the top-most row, fingers are raised farther up and generally touch system is not followed for typing figures. The efficiency and durability of a typewriter depends very largely on the operation's touch in striking the key. It isvery important that a firm, light and quick touch must be accuired by the operator avoiding violent banging and thumping on the keys. The touch should be sharp and quick. The key should be fully depressed with adequate force so as to make the type-bars strike against the paper on the cylinder. Do not hold the key down or allow the finger to linger on it. Strike only one key at a time and release one character key completely by taking the finger promptly away from it before striking another.

THE CORRECT POSITION AT THE MACHINE.

The operator should sit in an erect, easy position.
The fingers are kept curved so as to strike the keys with tips of the fingers.
The upper arm hange in an easy position almost parallel with the body.
The elbows hang near the body instead of being spread out with as if trying to fly.
The height of the table permits the elbows to be on a plane of parallel with the key-board.

STEP BY STEP MOVEMENT OF THE CARRIAGE

The step by step movement of the carriage is effectedby the force of the main spring and the action of the dob blick, The dog block is otherwise called the Rocker' The dogs, (one loose and the bther rigid) are mounted on the upper portion of the dog block. The lower portion of the dog block is connected to the centre of the Universal bar bye-link. The universal bar is fitted over the top of the key levers. At the lover end of the vertical type bar connectin wire, there are adjust screws which press down the universal bar. The carriage tension, i.e. the main spring tension, is connected to the carriage by a drew strap, one end of which is attached to the main spring drum stud and the other end to the carriage right hook. The carriage rack rests on the Pinion wheel in the rear of which is the escapement wheel, and the dogs work on the teeth of the escapement wheel alternately.

ACTION:- When a key button is pressed and when the typebar reaches the type-bar guide, the vertical connecting wire presses down the universal bar and its middle link pushes back the lower portion of the dog block. The upper portion of the dog block comes forward (as the rocker is hinged in the centre) the loose dog clears forward and moves to the left. The rigid dog holds the tooth of the escapement wheel freed by the loose dog and holds the carriage in position for the types to strike on the paper. When the pressure on the key button is released the typebar, the Universal bar and the dog block resume position, the righ dog clears back, the loose dog comes into the middle space between the teeth of the escapement wheel to the opposit of which it stood, and the carriage tension draws the carriage to the left. The carriage moves until the motion of the loose dog is checked from moving further. This is one letter space (As the edges of the dogs are at slightly difference levels a full letter space will be obtained only after in types are released.)

RIBBON MOVEMENT.

It is the function of this mechanism to provide for step by step feeding of the ribbon in front of the platen providing a new section of ribbon for printing each character, in order to maintain a uniform impression.

The whole movement is automatic. When once a new ribbon is fitted in the machine, till the inked surface is exhausted, it does not need the attention of the operator. The movement is divided into 3 parts viz., 1. Lengthwise movement, 2. Reverse movement, and 3. Ribbon throw.

The peculiar feature in the Halda is that there is ribbon movement only when the character keys are operated. There is no ribbon movement for space space bar, carriage release lever or the tabulator key action.

2. Lengthwise movement of the ribbon.

When a character key is pressed down, the vertical connecting wire presses down the universal bar. To the left side of the Universal bar, the Ribbon Feed Pawl is attached which works on the Ribbon Feed Ratchet fixed at the left end of the long gear shaft (otherwise called Ribbon Reverse Rod. To this long gear shaft is fitted two bevel gears, one at either end, to engage with the bevelled gear of the Ribbon Spool Shaft. The bevelled gears on the long gear shaft are so joined that when one side bevelled gear is engaged with that side Spool Shaft gear, the other side is disengaged.

Below the Ribbon Feed Pawl, there is the Ribbon Ratchet Stop Pawl fixed in a separate rod. This stop Pawl prevents the lateral movement fo the Ribbon Feed Ratchet.

ACTION: When the Universal bar is pressed down by the depression of a character key, the Ribbon Feed Pawl turns the Ribbon Feed Ratchet, and the long gear shaft turns. The bevelled gear of the long gear shaft which is engaging the spool Shaft gear turns the ribbon on that side. When the ribbon winds on one side the other side unwinds. When it is completely unwound, reverse section take place.

3. REVERSE MOVEMENT:

When one side spool is empty, the reverse pawl which is confined to the hub of the empty spool oens out, the lower opening of which pushes forward the reverse lever connection, and when a character key is pressed, the long gear shaft is pused to the empty spool side. (If the right spool is empty, the gear shaft is pushed to the right and if the lef5 stool is empty the shaft is pushed to in right. This long gear is held in position by the gear shaft, detent which on the right side of the gear shaft. This gear shaft will not move of itself, unless the reverse action takes place, or is set by hand.)

4. RIBBON THROW:

Whenever a type-bar is brought to the printing point, the ribbon surgace is thrown up, to give inked impression on the paper.

The Universal bar connecting link is connected to a vertical link, which actuates the ribbon throw adjuster. The front end of the Ribbon Throw Adjuster is hooked to the lower portion of the Ribbon Carrier, the upper portion carries the Ribbon.

ACTION: When a character key is pressed, the vertical link lifts up the ribbon throw adjuster and the Ribbon Carrier is lifted up, thus presenting the ribbon suface before the type, for inked impression.

The motion of the Ribbon Throw Adjuster is governed by the adjustment of the Ribbon Position Indicator. If the Ribbon Position Indicator is in the lower position i.e. at blue point, the Ribbon Throw Adjuster is lifted half way upwards and we type on the upper half gurface of the ribbon; if the indicator is lifted up to the red point the ribbon throw adjuster lifts the ribbon carrier fully upwards and thus we are enabled to type on the lower half of the ribbon.

When the Indicator is in the middle position, i.e. white point, the middle slot in the ribbon throw adjuster falls directly over the vertical link, which cannot lift the ribbon throw adjuster. This position is intended for stencil cutting.

VARIABLE LINE SPACER: If the platen Release Button is pushed in, the connection between the cylinder and the line space ratchet is released and the cylinder can be turned to any desired position by the platen knobs. (When the Variable Line Space Button is used, care should be taken to see that the line of writing is again brought to original position, which is close to the edge of the Linde Guide, otherwise called Cylinder Scale). The markings on the scale aid reinsertions and corrections after a typed sheet has been removed from the machine.

LINE SPACE RATCHET DISENGAGING LEVER: When this lever is pressed down the roll of the Cylinder Stop Spring is pushed back from engaging into the notch of the Cylinder Ratchet and the cylinder is free to be turned by either of the Thumb Wheels. This part is used to type fractional spacing and, when released, the Cylinder will come back to the original writing line position. If the Line Space Lever is used when the Cylinder Ratchet Disengaging Lever is pressed down, thepaper will turn to next line of writing.

When the platen Release Button (Variable line space button) is used, line spacing must be done by thumb wheels only. If the Line Space Lever is used the Ratchet alone will turn without the Cylinder.

The Cylinder is held in position by the Roll of the Cylinder Stop Spring engaging into the notch of the Cylinder Ratchet.) Notch spacing between the teeth).

MAIN SPRING AND DRAWBAND: The force of the main spring is exerted on the carriage by means of the Drawband for the movement to the left. There is always a latent tension adjusted in the main spring. When the carriage is drawn to the right the tension is increased slightly and propotionately decreases when the carriage is moved to the left. The tension is increased or decreased by turning the main spring screw either to the right or left.

SHIFT MACHANISM: The function of the shifting mechanism is to provide the means to change case or vary the relationship between the typebar (with two characters) and the platen. In typewriter technical Language, lower case refers to small letters (i.e. the lower type on the type bar) with mechanism in nonshift position. Upper case refers to capital letters, which may be printed only by lowering the typebar throughthe shifting mechanism. This is referred to as "Segment Shift".

This face of each of the two types on the typebar is formed to fit the radius of curvature of the platen. When adjusted properly,, a line drawn horizontally through the centre of the type character (in either shift position) would bisect perfectly the platen on a horizontal plane. This adjustment is referred to as the ON FEET-ADJUSTMENT of the Typewriter i.e. putting the type on their feet to provide a full and complete impression of the character. If the platen is too high or too low

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in its relation to the curvature of the type-face, impressions will be either light on the top (denoting platen is too low) or light on the bottom (denoting platen is too high).

The machine is provided with two shift keys and a shift look key. The left shift key should be used to type right hand side upper case letters, and the right shift key for left hand side upper case letters.

The shift key must be pressed well down and held in position before striking the character keys, otherwise the capital and small letters will not be in alignment.

To type continuous upper case characters, use the shift Lock Key, which, when moved back and pressed down, catches in a plate lower down (Shift Lock Plate) and keeps the segment in lowered position. The Shift Lock Key must be released by pressing down the left shift key.

When the Shift Key is pressed, the Segment is lowered down for typing capital letters; the carriage does not rise.

PAPER RELEASE OR FEED ROLL RELEASE KEY: This is useful for setting right a paper that is not in the proper position of writing. If you want to erase and type a new letter in a typed paper you can lock the Feed Roll Release Key and you are then free to use both the hands in adjusting the paper. Also when 10 or 12 sheets have to be inserted at a time for takingcopies, it can be done so easily by pressing the Release Key. For removing the paper from the machine, this key is used since by this method the paper can be removed easily without any wear and tear of any part of the machine.

To adjust the paper, the Feed Rolls Release Lever should be drawn forward. This releases the pressure of the Feed Rolls and paper bail Rolls on the paper. After adjusting the paper straight, push back the Feed Rolls Release Lever to its original position. The Feed Rolls and the Paper Bail Rolls now press the paper close to the Cylinder and aid the uniform feeding of the paper.

When the lower edge of the paper is freed from the pressure of the front Feed rolls, the paper Bail Rolls feed the paper up, thus enabling the operator to type close to the bottom edge of the paper.

The paper bail rolls can be moved to any position on the paper bail Rod to hold different widths of paper.

The scale marks on the paper bail rod correspond to the marking on the Margin Stop Bar and is an aid to denote the position of the carriage and the printing point.

DEFECT: If the paper is fed unevenly in the machine, this is due to uneven pressure of Feed Rolls at either ends, or the rubber covering on the Feed Rolls hub becoming loose. (This is however for the attention of a mechanic).

LINE SPACE LEVER AND ADJUSTER: Line spacing between lines is done by the Line-space Lever and the motion of the Line-space Lever on the Cylinder is governed by the adjustment of the Line-space Adjuster. The Line-spacing can be adjusted to 5 different widths, i-e. 1,1½,2,2½ and 3 spaces. The half spacing is used to type raised or lower characters as in formulse or interlining omissions.

ACTION: The Line-space Adjuster governs the motion of the Line-space Pawl on the Cylinder Ratchet. If the Line-space Lever is pushed fully to the right, the Line Space Pawl turns the Cylinder Ratchet; thus the paper is turned to the next line of writing according to adjustment and we come to the begining of the next writing line.

MARGIN STOPS: There are two margin stops, left and right. The left stop is adjusted for the left margin on the paper and the right stop for adjusting the right margin, i.e. to close the line of writing.

Lif up the Paper Table and push it back which will stand in that place and you will find the margin stop Bar and stops. There are no scale marks on this bar, but you will find the scale of the Tabulator Stops on the cover plate.

To adjust the left margin, press down the left margin stop release button, and move the margin stop along the Margin Stop Bar to the right till the Margin Stop Indicator points directly in front of the marking on the scale. Similarly, to end the line of writing, release the right Margin Stop and move it to the left to point against the marking on the scale.

The Right Margin Stop in addition to closing the line of writing warns theoperator by a bell sound just eight spaces before the end of line or writing. After hearing the bell, you must finish the word or break the word into syllables and return the carriage to the next line of writing. If you go to the right end, the keys will be locked. If the keys are locked before you can finish the word or syllable, to release, press the Margin Release Button which releases the right margin stop and the Universal Bar can be pressed by the Key Levers.

BELL: Just 8 spaces before the end of the writing line, the front lower extension of the right margin stop passes over the top projection of the bell-hammer and tilts it; thus the bell-hammer is raised, when the carriage passes and the bell rings. You can type 8 letters, after which the lower projection of the right margin stop moves the Universal bar connection and prevents the keys from being pressed. To release,the margin release button is used as stated above. (Under margin stops)

CARRIAGE RELEASE KEYS: These are useful for bringing the carriage to any desired degree in the scale easily by a method otherthan step by step.

There are two carriage release keys or levers one at either end of the carriage rack and behind the platen knobs. When the carriage release lever is pressed, the carriage rack is lifted from the pinion wheel and the carriage tension draws the carriage tothe left. Thus we can move the carriage to the left to any desired point.

The carriage can be drawn to the right without the use of the carriage release levers, but cannot be drawn quickly and at a stretch to the left to any desired point unless the carriage release lever is pressed.

When the carriage is drawn to the right, the carriage rack turns the pinion wheel, which with the escapement wheel, slides over the loose dog, but when the carriage is drawn to the left, the loose dog holds the tooth ofthe escapement wheel and prevents it from turning; so, the carriage release levers must be used to bring the carriage quickly to the left.

There are three ways to move the carriage to the left, viz. (1) by pressing the character keys or the space bar, (2) by pressing the carriage release keys and (3) by pressing the tabulator key.

TABULATOR KEY:The Halda Typewriter is providedwith key-set tabulator. The tabulator stop rack can be seen by lifting the paper shelf.

When the Tabulator Stop Set Button is pushed in, the tabulator stop is pushed back by vertical connection.In this way as many stops as required can be set.

ACTION: When the Tabulator key button is pressed down, the carriage rack is lifted from the pinion wheel and the loose dog is released from the tooth of the escapement wheel, and the carriage tension draws the carriage to the left. At the same time, the Tabulator Stop Pawl is lifted up which comes in contact with the Tabulator Stop and arrests the further movement of the carriage. When the pressure on the Tabulator

key is released the loose dog holds the escapement wheel in position. To release the tabulator stop, the tabulator release lever is lifted up and the stops are pushed back to original position; or, if individual stops are to be released, bring back the carriage to the adjusted position, and draw forward the stop release which is at the centre top of the back side of the machine.

LINE FINDER OR ALIGNING SCALE: This indicates the correctness of the bottom edge of the writing line. This is useful for readjusting paper after removal or when writing on ruled papers.

BACK SPACER: The back space key is connected by links to the back space pawl, which works on the tooth of the escapement wheel. When the back-space key is pressed down, the back space pawl holds the tooth of the escapement wheel which is held by the loose dog, slides one space to the right. When the pressure on the back-space key button is released, the back-space pawl resumes its original position.

NOTE: The back space key button must be pressed well down and kept in that position till the carriage moves one space to the right.

KEY BOARD: The machine is provided with 44 keys buttons; the operation of each key produces two characters, a total of 88; besides these, there are two shift keys and a shift lock. There is also a back space key at the right side, a margin release key, a tabulator set key and a tabulator key on the left side.

SPACE BAR: When the space bar is pressed down, the space bar pull wire draws forward the top of the dog block connecting link, the lower part of which pushed back the lower portion of the dog block. The upper portion comes forward, the loose dog which is released from the tooth of the escapement wheel slants to the left and the rigid dog holds the tooth freed by the loose dog and prevents the carriage from moving. When the pressure on the space bar is released, the space bar and the connecting link resume position, the regid dog cleare back, the the loose dog stands into the middle between the teeth of the escapement wheel to the opposite of which is stood and the carriage tension draws the carriage to the left. The carriage moves until the motion of the loose dog is checked from moving further. The space so travelled is one letter space.

ALIGNMENT: Alignment is the allocation of letters in a straight line with even spaces between them. The alignment of characters on type bars both vertically and horizontally, through comparison with the master aligning letter, capital 'N' and lower case 'n' requires careful application of special tools. Three prong pliers and Type-bar Twisters are generally used to form the head of the special type bar to fit its proper position in the type bar nest. Alignment should not be attempted until all other contributing factors have been carefully checked and adjusted. Some of these contributing factors are given below:

1. Wearing away of type guide.
2. Mainspring tension adjusted properly.
3. Escapement Rocker fitted snug on pivots without binding.
4. Escapement dogs positioned properly.
5. Carriage and segment fitted properly and all loose play eliminated.
6. Platen fitted properly and all end shake removed.
7. End shake in rack eliminated.
8. Type bars free in segment slots.
9. Type bar links of proper side and shape and not binding.
10. Universal bar free on its pivots without excessive and shake.
11. Shifting mechanism adjusted properly.
12. Type properly soldered to bar.

TENSION: The carriage moved fully one step after the key is released and after the impression is made.

In all, there are 4 main tensions in Halda machine:-

(i) CARRIAGE TENSION: In foolscap machines it in about 1 lb. It is the force with which the carriage is pulled by the main spring.

Carriage tension is increased by simply turning the main spring screw in clock-wise direction. To lessen the tension, the screw is turned in anti-clockwise direction.

(ii) KEY TENSION: It is the force with which the dog block is pulled. The circular disc found below the machine is turned to the right or left to increase or decrease the key tension.

(iii) RACK TENSION: Rack tension is the force with which the carriage rack rests on the pinion wheel.

(iv) SHIFT TENSION: Shift Tension is the force with which the segment is shifted.

CLEANING AND OILING: Oil should be used sparingly. A drop or two on the carriage runways is sufficient. Use only oil that will not 'gum' Types should be cleaned with a stiff brush. Never clean exterior with alchohol which is injurious to the finish. A soft cloth, perhaps dampened with gazoline or benzine, should be used. Steel pins should not be used to clean types. If absolutely necessary a brass pin should be used.

ROMAN NUMERALS: Roman numerals are represented by capital and small letters of the alphabet. The following letters are used:--

I	is used for	1	C	is used for	100
V	''	5	D	''	500
X	''	10	M	''	1000
L	''	50	M	''	10000

When a character is preceded by one of less value, the whole expression denotes the difference of the value of the single character as:--

IV=4, IX=9. When a character is followed by one of equal or less value, the whole expression denotes the sum of the values of the single characters as:--VI=6, XII=12, XX=20.

Small Roman Numerals are used for paging supplementary matter, such as preface, index and sometimes sub-paragraphs, as.

Article 10 (i) (a) 13(ii) (a) and (b)

CAPITAL ROMAN NUMERALS ARE USED:-

(1) in numbers attached to the names of monarchs, as Edward VIII, George VI; and

(2) in numbering chapters, as "Chapter XXV" etc.

1965 = MCMLXV 1966 = MCMLXVI